



Mathematics Guidance for Making the Transition to the Common Core State Standards

On August 3, 2010, the Indiana State Board of Education adopted the Common Core State Standards (CCSS) in Mathematics and English-Language Arts, a set of standards that over 40 states and 4 territories have now adopted. To support the CCSS, the Indiana Department of Education (IDOE) has partnered with the Partnership for Assessment of Readiness of College and Careers (PARCC), an assessment consortium of 25 states to develop a K-12 assessment system aligned to the CCSS. These assessments will be operational by 2014-15, at which time they will replace ISTEP+ as the accountability assessment for the State of Indiana. As such, school corporations must be fully transitioned to the CCSS by 2014-15 and must focus on providing the proper foundations for students during a transitional period.

IDOE recommends that local school corporations make this transition in two phases: a transition to the *Standards for Mathematical Practice*, followed by a transition to the *Standards for Mathematical Content*.

- **Phase 1: Standards for Mathematical Practice.** School corporations should begin the transition to the *Standards for Mathematical Practice* in the 2011-12 school year. By beginning this transition before attending to changes in *Standards for Mathematical Content*, teachers can focus on understanding the mathematical practices and integrating them into their current curriculum while changing their instructional practices, as well as formative and summative assessments, without also having to focus on teaching new content. The specifics of this transition are laid out in the next section.
- **Phase 2: Standards for Mathematical Content.** School corporations should begin the transition to the *Standards for Mathematical Content* only after properly attending to Phase 1. By introducing changes in content too early, corporations may miss the opportunity to focus on the changes in instruction and curriculum design that need to take place irrespective of content, in order to meet the expectations of the CCSS. While a small number of school corporations may be ready to make this transition in 2011-12, IDOE recommends that school corporations wait until 2012-13 to begin this transition.

Although school corporations can choose when to begin Phase 1 and Phase 2, both phases of the transition must be complete by 2014-15, when the CCSS and PARCC assessments are both fully implemented and operational.

A video series explaining the major shifts in mathematics from the IAS to the CCSS will be provided on the Common Core webpage at www.doe.in.gov/commoncore to assist math educators in understanding the changes they will be making to curriculum, instruction, and assessment to ensure all students are prepared with the foundation for success in college and careers.

Phase 1: Standards for Mathematical Practice

The first phase of the transition to the Common Core State Standards (CCSS) for Mathematics will attend to the *Standards for Mathematical Practice*. These standards have parallels to the *Problem Solving* indicators in the current Indiana Academic Standards, but they extend beyond the current expectations. Additionally, whereas the *Problem Solving* indicators are different for each grade in the Indiana Academic Standards (IAS), the *Standards for Mathematical Practice* are consistent throughout each of the K-12 courses. This continuity throughout K-12 emphasizes the importance of these standards for college and career readiness.

- Make sense of problems and persevere in solving them
- Reason abstractly and quantitatively
- Construct viable arguments and critique the reasoning of others
- Model with mathematics
- Use appropriate tools strategically
- Attend to precision
- Look for and make use of structure
- Look for and express regularity in repeated reasoning

Standards for Mathematical Practice should not be viewed as additional lessons to be taught alongside the *Standards for Mathematical Content*, but rather the two parts of the CCSS should be integrated into coherent units and lessons. The integration of these two parts of the CCSS represents not only a shift in curriculum design, but also a shift in instructional strategies. In many cases, the integration of these Standards results in the process of arriving at an answer being as important as arriving at a correct answer. Proficiencies in *Mathematical Practice* should not be built in a vacuum, nor should proficiencies in *Mathematical Content*.

During the 2011-12 school year, IDOE recommends that schools focus on understanding and implementing the *Standards for Mathematical Practice*. Because these standards are developed irrespective of *Standards for Mathematical Content*, they are able to be integrated with any set of content standards. As such, teachers and schools should begin integrating the *Standards for Mathematical Practice* into their units and lessons during the 2011-12 school year. The *Standards for Mathematical Practice* are located at http://dc.doe.in.gov/Standards/AcademicStandards/PrintLibrary/commonCoreMath/CORE_MathStandardsPractice.pdf

To prepare students for the expectations of the CCSS, schools will need to include certain CCSS with the IAS during the 2011-12 school year in grades 1-8. Although these inclusions are limited, they are essential for building the foundational skills required in the CCSS. The list of these standards appears on the 2011-12 Mathematics ISTEP+ Assessment Guidance document found at www.doe.in.gov/assessment. These standards will also be included in the IDOE curriculum development resources found at the *Curriculum Map Resources* link at <https://learningconnection.doe.in.gov>.

Phase 2: Standards for Mathematical Content

The second phase of the transition to the CCSS will attend to the *Standards for Mathematical Content*. The *Standards for Mathematical Content* have parallels in the Indiana Academic Standards (IAS), but the expectations of the CCSS go well beyond the expectations of the IAS.

To make the transition, IDOE recommends that schools teach a combination of the two sets of standards, as outlined in the **CCSS Transition Standards** document, beginning in the 2012-13 school year. This document will outline the alignment between the CCSS and the IAS, and it will also delineate additional skills from the IAS that should be included to provide students with opportunity to learn the material on ISTEP+ and the Algebra I End-of-Course Assessment (ECA).

The **CCSS Transition Standards** document will be available in the 2011-2012 school year, so math educators and school leaders can begin to study the content changes and begin planning for curriculum revisions and professional development. However, we recommend that Phase 1 be fully implemented before teachers are asked to invest significant time and energy studying content changes.

Phase 2: Moving to the Common Core State Standards

To assist schools in making this transition, IDOE is developing guidance on aligning the CCSS with the ISTEP+ requirements.

As we begin the transition, schools should be cognizant of the discrepancies that must be attended to so that students are successful on both ISTEP+ and the Algebra I ECA and the future PARCC assessments:

1. Although the CCSS incorporate and extend beyond the IAS in nearly every case, certain gaps do exist between the two sets of standards. On the **CCSS Transition Standards** document, these gaps are identified with a  symbol. These are standards that have been added to the CCSS *only for the transition*, in order to prepare students for the ISTEP+ assessment. In 2014-15, when ISTEP+ is replaced with the PARCC assessments, any standard denoted with a  symbol will be removed.
2. The CCSS language includes vocabulary that may not be grade-level appropriate. As such, teachers should be mindful of the vocabulary included in the standard language for teacher clarification, as opposed to vocabulary included in the standard language for student proficiency.
3. ISTEP+ and the Algebra I ECA use precise academic language that is included in the IAS, but that may not be included in the CCSS. Therefore, schools should continue to reference ISTEP+ guidance documents, including vocabulary and item samplers, to ensure that students are provided with opportunity to learn. The CCSS Transition Standards Document will display the standards side-by-side and provide an explanation of the commonalities and differences between the two sets of standards, enabling teachers to understand the difference in expectations, as well as the difference in vocabulary used.

Instructional Materials Analysis

Due to the emphasis on the *Standards for Mathematical Practice*, the cluster design of the standards, the increased depth of the CCSS, and the grade-level content shifts from IAS to CCSS, curriculum planning teams will need to evaluate their current instructional materials. This is true for schools who have already adopted instructional materials, as well as those who will adopt materials aligned to the CCSS. In either case, chapters and lessons may exist that do not meet the full expectation of the CCSS, and others that do not meet the full expectation of the IAS. School corporations will very likely need to exclude certain lessons or chapters in order to focus on what is required of the standards. They will also need to determine which chapters or lessons should be used to teach the required content to ensure coherence in the curriculum. This will likely require teachers to teach out of order from the textbook and only use the lessons needed. It will also likely require teachers to develop gap lessons and to adapt lessons to meet the full expectation of the standards.

The increased depth and focus of the CCSS also may lead to entire sets of materials being inadequate for instruction of the CCSS. An important part of the curriculum revision process will be to examine what the current curriculum asks of students and to determine how this aligns with the expectations of the CCSS. Schools should be hesitant to rearrange and supplement these poorly-aligned lessons, but rather should investigate entirely new resources that are better aligned to the CCSS. In the case where school corporations are unable to adopt entirely new materials, curriculum planning teams should identify the potential gaps in expectations and clearly address these gaps through supplemental materials and newly-developed lessons. Current materials may not provide “ready-made” lessons that address the CCSS specifically, but teachers can work together to design units and lessons that do meet the expectations of the CCSS.

PROGRAM VERSUS TEXTBOOK NOTE: Certain “programs” have a strong research base. These programs should be implemented with fidelity, but it should be acknowledged that certain content being taught may not be in the standards. Ask the trainers of the programs for advice on how to address this as you transition to the Common Core State Standards, as the standards focus on fewer standards to be learned more deeply. The scope and sequence will need to be examined to ensure the program is not only taught with fidelity, but that the entire set of grade-level standards are included and learned. Adaptations should be made thoughtfully and with the advice of the program developers.

Curriculum Realignment and Revision

To support schools in curriculum development, IDOE will provide curriculum map resources that should serve as a **starting point** for developing local curriculum. The 2011-12 curriculum map resources group the IAS and essential CCSS into units which should be taught as a coherent whole as they represent big ideas in mathematics. The curriculum map resources also provide instructional strategies that support mathematical practices, common misconceptions for major topics, sample lessons, suggestions for differentiation, and connections. In addition, attached to the curriculum map resources are sample units and unit planning templates.

The state curriculum map resources list discrete learning targets that represent the content and skills required to meet the standards, which ensure that all teachers have a common understanding of the standards. However, it is important the teachers and curriculum developers do not use this information to teach these discrete skills as individual lessons to “cover” the standards. Effective instruction occurs when content is rigorous and relevant to the students, organized into big ideas or key concepts, and learned through an authentic inquiry. As teachers study the sample units and unit templates attached to the state curriculum maps, they will see that it is important to group standard indicators/learning targets into a meaningful unit of instruction. Throughout the unit, they must monitor that students are indeed learning each of the discrete skills through periodic assessments built into the unit, not separate from it. It is important that summative assessments measure the full standard or a group of standards in a complex task.

ISTEP+ Assessment Guidance

Access the “Assessment Guidance” documents under [Mathematics Guidance for Making the Transition to the Common Core State Standards](http://www.doe.in.gov/commoncore) at <<http://www.doe.in.gov/commoncore>>, which provide the following:

The “Assessment Guidance” documents were designed to inform and to assist with the IAS→CCSS transition.

- The first document is an “Introduction,” which consists of three focal points: *Opportunity to Learn, Assessing Student Learning, and Emphasis on Instruction.*
- The second document is a chart depicting the following:
 - Indicators that are assessed on ISTEP+ [identified by a “✓”]
 - Indicators that are best assessed in the classroom [identified by a clipboard symbol (☒)]
- The third document emphasizes the Mathematics CCSS that need to be taught during 2011-12.

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